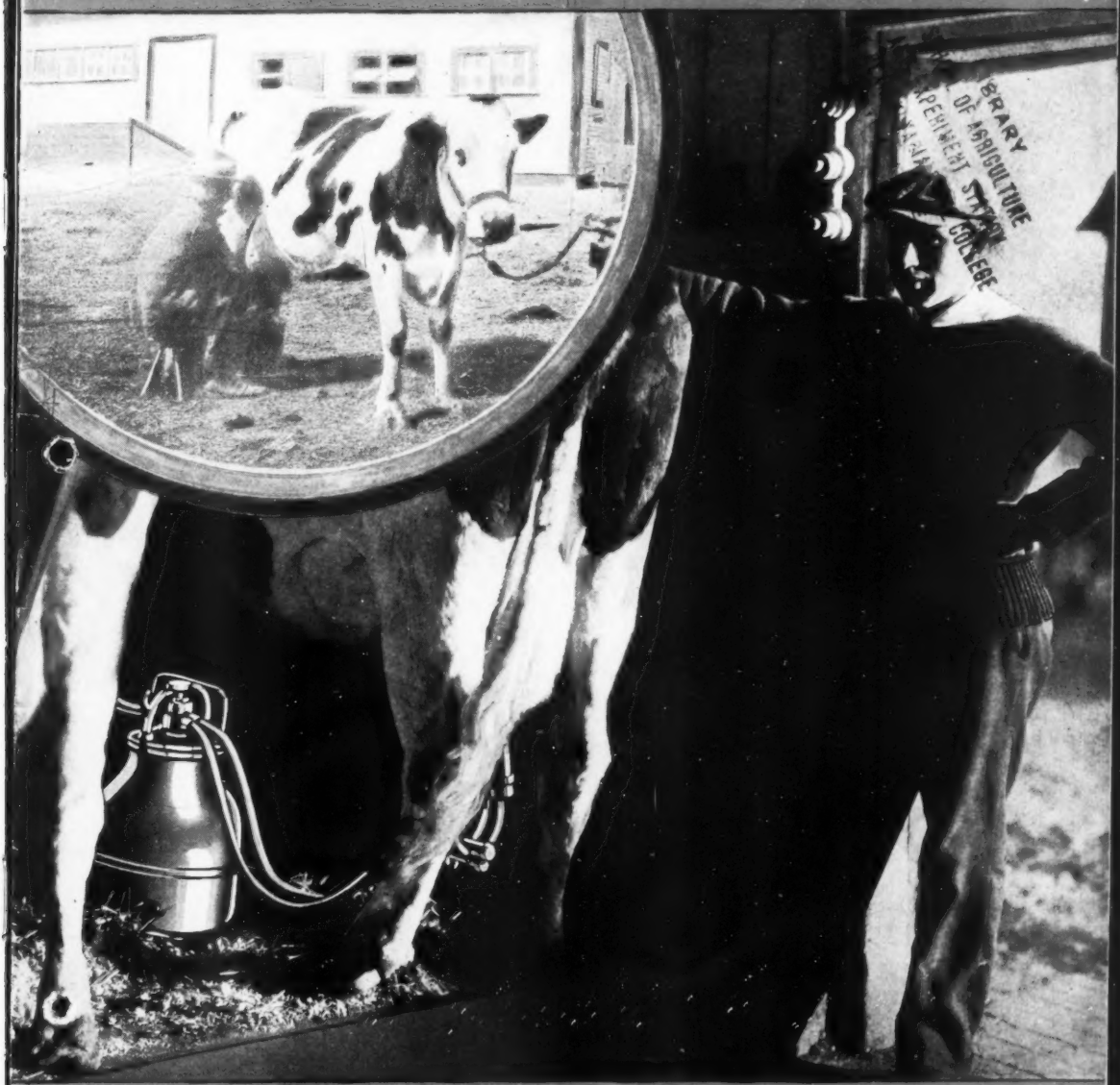
Electricity on the Farm

A MONTHLY MAGAZINE FOR THE UP-TO-DATE RURAL FAMILY



What is your title for this picture?

10 Cash awards will be given for the best.

(See inside back cover for details)

MARCH
1935

There's an entirely new standard for judging electric ranges — it's Miracle Cookery. Go to your power company today and see the new Hotpoint style leader—the *Treasure.*

MODERN CONVENIENCE
as well as appearance

Let an electric range be your first step in home modernizing. It not only is beautifully modern in appearance, but it will save you so much time, which you can use for other duties or pastimes. It will save money for you by reducing cooking failures, producing positive successes.

Hot water every hour of the day or night without one minute's attention from you, with Hotpoint's new electric Water Heater.

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See the range that won't go out of date. Make this your first step in home modernizing.

ELECTRIC RANGES **Hotpoint** **WATER HEATERS**

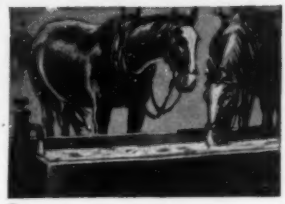
EDISON GENERAL ELECTRIC APPLIANCE CO., Inc., 5610 W. Taylor Street, Chicago

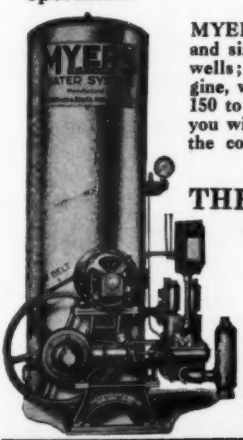
The GREATEST GIFT you can make your FARM and FAMILY

RUNNING WATER — YOUR FAMILY DESERVES IT

Buy while prices are LOW

SOME gifts bring greater comfort and protect health; some save time and labor, and some help to earn more money. But a good reliable water system does all of these things and more besides. It actually means a higher standard of living for the family and increased productivity for the farm. That's why it is the greatest gift you can make them today. And right now is the time to buy if you wish to save money. Prices everywhere are going up; but the prices on MYERS Water Systems still are low. For sixty-five years the name MYERS has been associated with the best to be had in the way of individual water service. Today MYERS Pumps and Water Systems are world famous for their absolute dependability and remarkable economy of operation.





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"Pump Builders Since 1870"

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(W-q)

MYERS
WATER SYSTEMS

Vol. 8. No. 3
March, 1935

Electricity on the Farm

EDITORIAL

Where Credit Is Due

NEW developments in the use of electric current are taken by the average person as a matter of course. New equipment appears on the market and is quickly put into widespread use without acclaim to the scientist who developed it.

But back of each invention there may be hours, days or even years of patient and painstaking research. The genius who is responsible for the advent of some new mechanical or electric benefactor of humanity is usually satisfied with the realization that he has done something for humanity; he asks no other recognition.

Just recently an outstanding research engineer was honored by the American Institute of Electrical Engineers, who presented to him the coveted Thomas A. Edison medal for his accomplishment.

This engineer, Dr. Willis R. Whitney, was responsible for the development of tungsten as a filament for the electric lamps; for the discovery of the beneficial effect to patients with certain illness of artificial fever produced by high frequency electric current; for new and highly efficient X-ray tubes, and for the many other inventions too numerous to be mentioned here.

Dr. Whitney is but one of thousands of men devoting their lives to science, many of whom do their work and pass on with no public recognition. For example, the average person never hears of the name of the man who invented the induction motor, now used so widely in farm applications; nor are the inventors of most of our electric equipment today ever mentioned.

Therefore it is particularly gratifying when one of these workers is honored by those familiar with his work. At least it shows that the public is willing to give acclaim when the man and his achievements are known.

THE PUBLISHERS.

IN THIS ISSUE

Milk Cooling Brings Cash and Contentment

Passing the good word along about some piece of equipment which has proved itself worthy of praise is not uncommon. And so, on page 7, a number of dairymen who rely on electric milk cooling equipment to help them produce a better grade milk tell what this equipment means to them.

Well Water for Well People

BY B. T. ANDERSON

The modern electric water system is a real aid to health. It promotes a more abundant use of water for drinking and general cleansing purposes, and sanitary facilities are also made available. But the purity of the supply must be without question, and it is the electric pump which will help secure just such a supply from a deep well source. See page 9.

Shopping 'Round for Ranges

BY VERA B. MEACHAM

If you were about to purchase an electric range what would be your procedure? Maybe you'd be a bit puzzled, too, as others have been. Materials and workmanship, as well as the size of range most economical for your purchase, must be considered. The facts prepared by the author on page 11 will help you know more about the construction of the electric range and thereby ease up your shopping around for this important piece of kitchen equipment.

Producing a Higher Butterfat Content in Milk

BY E. H. GRAHAM

The production of a higher butterfat content in milk has been the tendency among dairymen for a number of years. To improve their product and increase consumption is their goal. Various methods have been followed, but the only efficient means was found to be the centrifugal separator. Details of this subject will be found on page 13.

Regular Monthly Features

Electrical Housekeeping, page 16; On the Air, page 22; Questions and Answers, page 24; What's New, page 26.

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Right now-running water

AT THE LOWEST PRICE EVER ON RECORD
ACT BEFORE PRICES GO HIGHER

RUNNING WATER
YOUR FAMILY DESERVES IT

You may never again have the opportunity to provide your family so much pleasure and save them so much labor at so little cost. Operating costs were never lower, for electric current has never been cheaper. Act now, before prices go higher.

If you like, you can finance your Water System purchase under the Federal Housing Act. Money can be borrowed for complete job—from digging well to installing fixtures.

Whether shallow or deep well—CID pumps are sturdy, heavy duty units. Extra strength parts, quality materials and fine workmanship pay you big dividends in added years of trouble-free service.

Write Today for Free Booklet

This compact complete booklet helps you pick just the water system you need.

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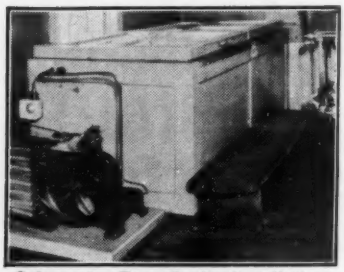
CID PUMPS... *Fully Automatic*

GOULDS

Do you want a NEW MILK HOUSE *for nothing?*

The experience of producers and distributors shows that old fashioned, inadequate milk cooling methods actually cost the average producer enough to build a first class milk house in a period of two or three years. And we can show you in black and white how Kelvinator equipment can easily save you enough money to cover the cost of a new milk house.

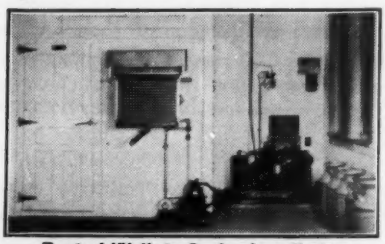
$166.41 ON LABOR—One dairy farmer spent 44 cents per hundredweight on labor alone. His neighbor, using Kelvinator, spent only 35 cents per hundredweight. Both farmers produced about 1850 hundredweight monthly which means that the Kelvinator user saved $166.41 every month on labor alone.



Submersion Type Cooler Installation

$27.00 EXTRA PROFIT—Another dairy farmer increased his premium from 25 cents to 40 cents—making an extra profit of $27.00 a month—more than enough to cover the cost of Kelvinator electric cooling equipment.

GET THE FACTS NOW—Why not find out how much money you can save by installing Kelvinator equipment? Without obligation, the dealer nearest you will study your problem and show you how you can save time, labor, trouble, and MONEY by installing Kelvinator equipment. See him soon and get the facts. . . . KELVINATOR CORPORATION, *14250 Plymouth Road, Detroit, Michigan. Factories also in London, Ont., and London, Eng.*



Typical Walk-in Cooler Installation

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Air Conditioning
Household Refrigeration
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Beverage Cooling
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Commercial Refrigeration
for every need of merchants, manufacturers and institutions

(1037)

KELVINATOR

MILK COOLING Brings CASH and CONTENTMENT

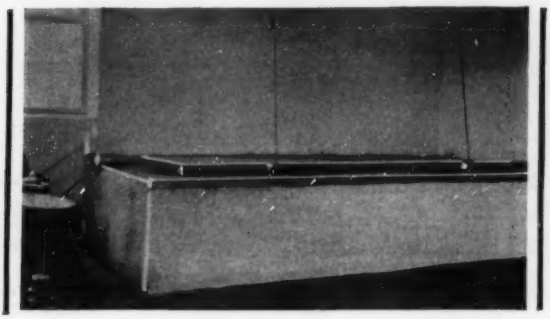
Farm folks high in praise of results of electrical refrigeration of milk.

"IT would be like traveling with oxen for me to go back to the old way of cooling milk." Thus Mrs. W. R. Scranton, located near Guilford, Connecticut, compares the old method of cooling milk by ice with the modern way of chilling milk with an electrical milk cooling installation.

"We had all the equipment for cutting and storing ice, including motorcycle saw rig, an ice house near by and plenty of ice on the lake right at hand. But the cost of paying hired hands to put up the ice and the bother in handling the ice would cost much more in cash outlay and additional work than would electric cooling. I don't think anyone selling milk should try to cool without electricity," states Mrs. Scranton.

The experience of Miss Rose Postemsky, Rural Route No. 2, Hampton, Connecticut, is quite similar. "Before we bought the electric milk cooler," says Miss Potemsky, "we cooled our milk with ice. It was not an easy task bringing the ice to the milk room every day, and certainly much more troublesome and disagreeable than just putting the milk into the cooler, as we now do. We have had our cooler for about four years, and it originally cost us around $450. Since we have had it, we have earned quite a bit of extra money, for none of our milk has been sent back to us. It has enabled us to sell more milk, too."

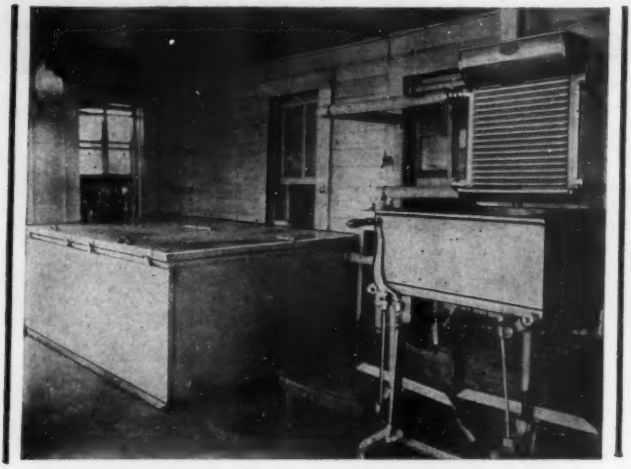
On the John M. Coombs farm, near Colrain, Massachusetts, a 12-can cooler has been in service



Upper: Here's the 12-can tank on the Coomb's farm near Colrain, Mass., that Miss Henry describes.

Left: The twelve-can milk cooler on the Postemsky farm.

Milk cooling equipment of H. A. Barnham, Oak Grove Dairy, Bastrop, Louisiana.



since 1931. Besides giving uninterrupted and thoroughly dependable service, it has earned $200 a year in premium money, due to better milk which it has aided in producing.

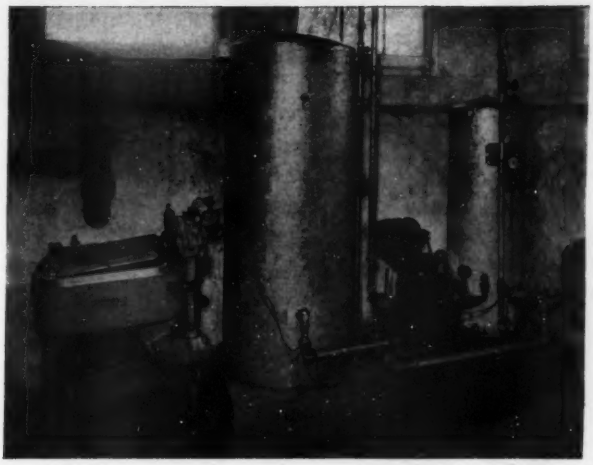
But let us hear what Miss Esther L. Henry, who lives with the Coombs, has to say about the electric milk cooling installation: "Besides actually saving money by eliminating ice harvesting and handling, and earning premium money, the cooler enables us to hold a good market for the milk by keeping the bacteria count to a minimum."

And she adds: "We are now selling around 240 quarts daily with good prospects for selling more. The electric cooler cools the milk better and in less time than it could be done with ice so therefore we are very well satisfied."

Down in Louisiana, on the Oak Grove Dairy farm near Bastrop, an electric cooler has been aiding in the production of superior milk for the past four years. Mr. H. A. Barham figures that the installation has paid for itself several times, besides reducing labor incidental to cooling the milk properly and quickly. "Once equipped with an electrical cooling system, the dairyman has an efficient, sanitary method of milk cooling that will make him money as well as increase his sales," is the way Mr. Barham puts it.

Experiences of other dairymen in all sections of the country are similar. Cooling milk with electrically operated equipment brings in more money, aids in keeping customers, often lowers production costs, and, finally, makes for contentment.

Milk cooling installation on the farm of Mrs. W. R. Scranton, Guilford, Conn.



A pumping installation providing both hard and soft water.

Automatic well water system adds to health in many ways, and especially through discouraging use of water from streams and other sources of questionable purity.

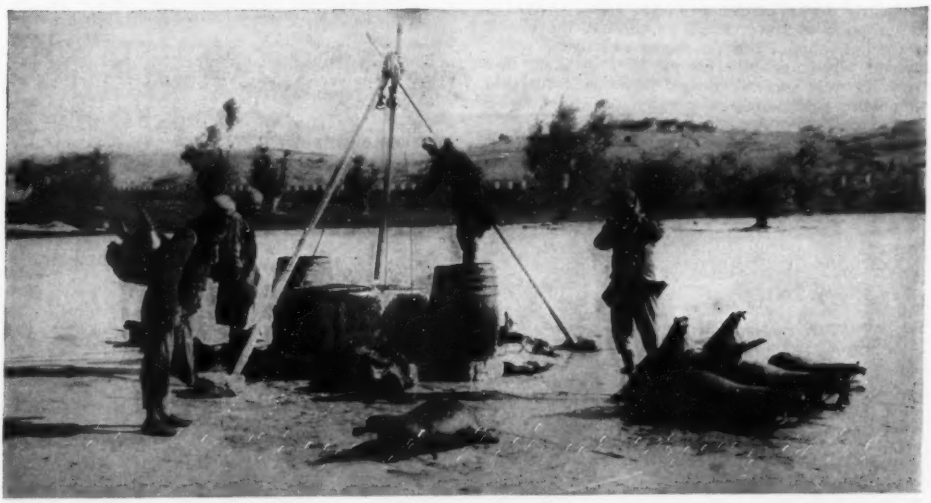
WELL WATER for WELL PEOPLE

By B. T. ANDERSON

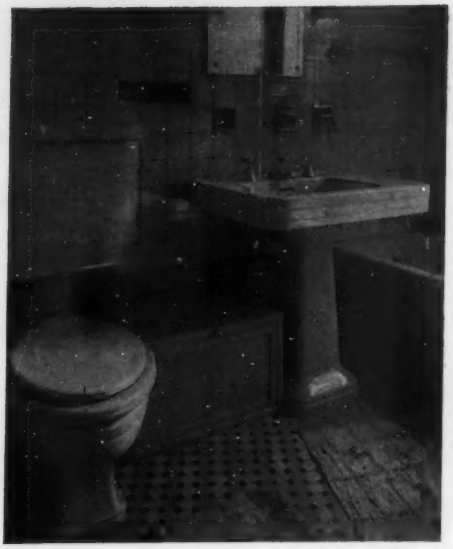
WATER, besides being the most important of the six foodstuffs upon which the human body depends for growth, is used in so many other ways in the daily routine of life that it holds first position in providing for the health and happiness of humanity.

A safe water for drinking is the prime requirement of the farm supply, but by no means the only one. The ease with which water is secured determines the extent of its use in cultivating good health.

Most people do not drink enough water. They are content to merely satisfy their thirst. Doctor J. A. Pollia, one of the leading health authorities of the country, states that the advantage of taking a prescribed number of glasses of water a day is that it gives the organs of circulation and excretion more work to do and therefore produces a



Water carriers in Palestine use goat skins as containers. Natives do not seem to be worried very much about the sanitary quality of the water.



Without a supply of water under pressure, modern home sanitary facilities are impracticable.

mild form of exercise for the heart, blood vessels, lungs and kidneys. It is generally agreed that adults should drink two quarts of water daily, although the quantity may vary considerably depending upon the type of work performed by the individual as well as the season of the year.

The ease of getting cool, palatable water has a direct bearing upon the amount consumed. If no hand pumping is required, and if cool water can be brought to hand by merely turning a tap, the average person will refresh himself much more frequently by a drink of water. The increased consumption of water tends to improve the health of the individual. Thus the modern electrical water system, which delivers water at any time, and fresh as well, has established itself as a real aid to health, particularly where a pure supply may be had from deep wells.

Ease in securing water also has a direct influence upon the extent to which it is used for bathing and other cleansing operations. If the water has to be pumped by hand, and if the old pump doesn't work easily, many a hand or face washing is neglected; likewise in the case of baths. Some families go to other sources of supply than the pump when it comes to getting water for bathing or washing. Water is brought in buckets from a nearby stream, and here is where trouble may occur. The stream may be badly polluted, and the containers used for carrying this water may subsequently be used for handling drinking water. In this manner what would otherwise be a bucketfull of pure water for human consumption may become polluted through being placed in the pail which still retains some from the creek.

Washday Need Not be Unpopular

What has been said regarding the use of water for bathing purposes applies equally to laundry. Where the well supply is the only available supply, and where all the water must be laboriously pumped, wash day is a very unpopular day on the farm. Less water will be used in laundering and many garments which otherwise would be kept spic and span may have to do without a periodic cleansing. If John Wesley was right, when he said "Cleanliness is indeed next to Godliness," the old hand pump can be charged with making a lot of ungodly people.

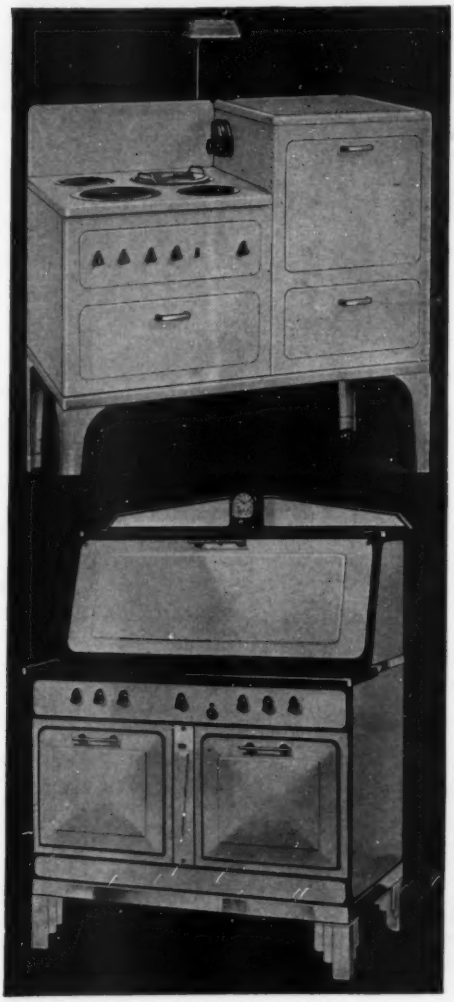
By like reasoning, a modern, motor-driven water system, delivering all the water needed at all times, should deserve credit for a very wholesome effect upon the farm folks in general.

One point commonly overlooked in connection with the modern farm homes is the question of proper sanitation. Where there are no automatic and dependable supplies of water, privies, either of the sanitary or unsanitary type, still remain. The latter is credited with many evils, not the least of which is the breeding of flies, which serve as carriers of germs. Modern sanitary facilities in the farm home are impracticable unless plenty of water under pressure is available.

So the modern water system, operated by a dependable little electric motor, has a far greater influence upon the health and happiness of those who live on farms than is generally recognized.

Natives of the Kikuyu tribe in British East Africa use gourds for transporting and storing of drinking water.

Shopping 'Round for RANGES



By VERA B. MEACHAM

PERHAPS you may find it hard to believe, but I do know a stove that sifts down ashes onto the beans, the bread, and the cake in its oven. When the woman who cooks on that stove tries to start a fire, she tells me she can huff and can puff like the big bad wolf himself, but if the wind is from the east or the west,—I don't remember which, —the fire just glowers glumly at her and bides its own time for burning.

She finds that annoying. She has been finding it annoying for several years now. She has said so, too, and her family are gradually coming around to the belief that something should be done about that stove, for the family likes its three meals a day.

After pondering on the matter for some time, her husband stopped in the bank one day to ask about getting a loan for a new stove under the Federal Housing Act.

"A stove?" said the banker, who had known Jim all his life, and had, in fact, helped him weather other periods of financial drought before this. "A stove. That depends. You know you can't get a loan on any removable property. Anyone could just take down the stove pipe and walk off with the stove any day."

"Not the kind my wife wants," interrupted Jim. "She's been goin' on about an electric stove ever since we've had the line, but what with one thing and another we didn't ever seem to get around to it. Now we've got to have some kind of stove before this one falls apart on the kitchen floor. I guess if we can get a loan for it, I can pay for it all right by fall."

"Oh, an electric stove," said the banker. "That's different. You can get a loan for that. Now about the terms,—"

But the terms were of interest only to Jim and the banker. Selecting the range, on the other hand, is apt to be of interest to every woman who has an eye to cooking with electricity herself some

day. And selecting the range was Ann's job. I just call her Ann because she refuses to appear in print until that range is all set up in her kitchen, and she has found out for herself how clean, how convenient, and how cool modern cooking can be.

Ann knew perfectly well that you can't just barge into a store and order a range sent up on the two o'clock delivery. Shopping for a range is serious business and she took it seriously.

She began by studying a new bulletin I lent her. It was Circular 47 from the Experiment Station at the University of Nebraska, "Choosing and Operating Electric Stoves", by Edna B. Snyder and A. E. Baragar. This is the report of recent studies of electric stoves and is definitely helpful in weighing one type against another.

Then she considered the different electric dealers in the town where she trades. For she felt, as I am sure you would, that the man who sells her so important an appliance as an electric stove must be well established in his communty. He must have a reputation for reliability and for promptness in service as well as for the quality of the goods he sells.

Next,—but have you ever considered yourself just what you would look for if you were buying an electric range?

The name plate probably.

The manufacturer of any machine is one of the most important buying points that machine has. If his is a reputable concern, if it has been in business long enough to establish a name for fair dealing and for good quality, that name is a factor you want to consider.

Sturdy Construction Essential

Then you get to the range itself. Good construction is of primary importance in this as it is in any stove. The range should be simple and sturdy with strongly built legs. Examine the braces. Look to see that all of the joints and seams fit tightly so they leave no place for grease to collect. The hinges, the latches, and switches should be smooth so you can clean around them easily.

The size of the stove is an individual problem, depending on the size of the space there is for it in the kitchen as well as on the size of the family. But whatever the model it should have space between the burners wide enough to take care of the kettles you will be using for your cooking. These spaces should not be so narrow that you cannot center two pans on adjoining burners.

Perhaps you would like to know a little bit about the cooking units themselves before you go to look at them. There are several kinds. In the open units the wires are laid in a porcelain asbestos brick that may or may not have an insulating block below it to prevent the escape of heat from the burner. In some units the wires are wound on a cone set in a metal reflector not unlike the radiant heaters we are familiar with. Some closed units look quite like the lids of a wood stove. In them the wires are enclosed between metal plates. In others the wires are inside coils or rings of metal built so that the coils or rings burn red when the current is on.

These units have varying heating capacities rated in watts. 1000, 1500, 1800 and even 2000 are usual wattage ratings. It takes small knowledge of arithmetic and no knowledge of electricity to

(*Continued on page 20*)

Standardizing milk with a multi-purpose separator at the farm of Harry Jones, R. D., Hamburg, N. J.

Producing a HIGHER BUTTERFAT CONTENT in MILK

By E. H. GRAHAM

FOR the past few years the tendency has been toward the production of milk of higher butterfat content and this tendency is steadily spreading and gaining strength. An abundant supply of milk, the desire of milk distributors and public health officials to make milk a still more potent health food, and the well-grounded belief that milk consumption can be accelerated by offering richer milk to the consumer have been the major factors in this market trend.

In the New York market, for example, the butterfat standard for Grade A milk was raised recently to approximately four per cent. Many producers find it impossible to meet these higher standards without adding cream to their milk, a process known as milk standardization, and heretofore unauthorized in most milk producing sections.

Approved Farm Standardization

This situation resulted in a meeting called recently by the head of the N. Y. State Department of Farms and Markets which was attended by officials of the larger milk producing companies, the health commissioner of New York City and other authorities. Milk standardization on the farm was discussed and considered from every angle. Council for the State Department of Farms and Markets rendered an opinion that under the present state law standardizing could be effected on dairy farms by the addition of cream of the same grade and quality.

Beyond doubt those who framed the law prohibiting standardization on dairy farms were not considering the possibility of any one adding cream or removing skim-milk and hence bettering the quality of the cream. The law was aimed exclusively at the prevention of milk adulteration, tending to lower its quality and standards.

As a result the health commissioner of New York City issued an order to country milk inspectors permitting milk standardization on dairy farms by means of separating or other methods, except siphoning, provided there be no health hazard. The State Department of New Jersey has since rendered an opinion that standardization of milk is permissible on dairy farms in that state. In some other states standardizing is now permitted and no doubt in time will be permitted in all others.

Methods of Standardization

In their first attempts to raise the butterfat content of their milk many dairymen, particularly owners of Holstein herds, mixed higher testing cows into their herds but quickly found that this procedure greatly complicated their problems of management and breeding and hence failed in its purpose. It was also feared that if this practice were generally indulged in the result would be a mongrel lot of dairy cattle in a few generations.

Siphoning by means of a rubber tube so that

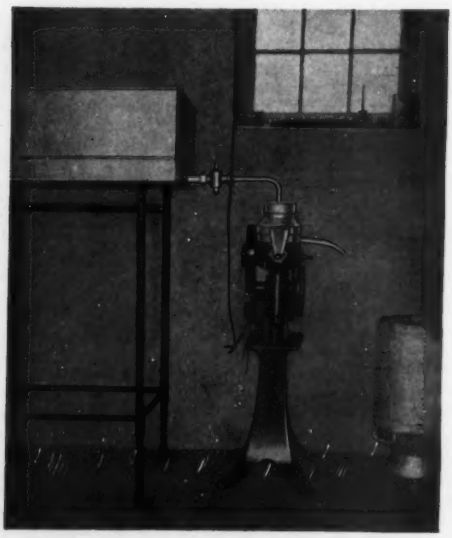
Mr. Roe Van Ness, R. D., Augusta, N. J., uses this separator for standardizing his milk.

low testing milk in the bottom of a can or tank may be drawn off as a means of increasing the butterfat content in the remaining milk is not only prohibited for sanitary seasons, but has been found unsanitary and wasteful because it has been found by test that milk siphoned off may contain as high as two per cent butterfat.

Foremilking—withdrawing the first milk in a cow's udder which is supposed to test low in butterfat—has also been found to be wasteful and unreliable, for the foremilk often tests between one and two per cent, especially if the cow's udder is agitated before milking by the cow's walking in from the fields or by having the udder massaged in washing and cleaning, which must be done in producing Grade A milk or clean milk of any kind. This has the effect of agitating and mixing the milk in the udder so that the foremilk more nearly approaches the normal butterfat content of the milk. This method has also been found to result in a test which varies widely from day to day.

The use of holding tanks with faucets installed at the bottom to permit low testing milk to be drawn off is permitted, but most farms have neither the space to put such a tank nor facilities for washing it. The milk has to stand for at least three hours to effect partial separation and suitable provision must be made for keeping the milk cool during this time either by having the tank immersed in water or provided with a jacket for circulating cooling water.

Again the problem of partial separation enters in, for proper separation cannot be effected by gravity setting methods. Years ago the Indiana Experiment Station conducted various methods of gravity separating with the centrifugal cream separator. They found that in separating a given quantity of milk 26.2 lbs. of butterfat was lost by shallow pan gravity setting and 40.07 lbs was lost by water dilution, while only 1.2 lbs. was lost when the centrifugal cream separator was used.



The separator installed in the dairy room of B. Krotje at Newton, N. J.

Centrifugal Separator Only Efficient Means of Separating

Results such as these many years ago convinced dairymen who separate cream that the centrifugal cream separator is the only economical way of doing so. Exactly the same problem confronts the dairyman producing whole milk who proposes to standardize. The butterfat in his milk is worth more to the whole milk dairyman than it is to the dairy farmer who is producing cream for butter-making purposes, and a loss of even one per cent would more than pay for his separator within a comparatively short time.

Aside from any consideration of economy, the use of the cream separator in standardizing also has other decided advantages. It permits the milk to be standardized immediately after milking, requires comparatively little space and can be cleaned along with other dairy utensils. If desired the separator need be used but once a day for standardizing. By standardizing one milking or approximately half the total milk produced, twice as much as would be necessary for the entire quantity, when night and morning milk are mixed in the receiving vat at the milk plant the butterfat will be equalized to the desired standard.

Regular Separator Can Be Used for Standardizing

Standardizing can be done with any regular cream separator by simply separating enough cream and then pouring it back into the remaining milk, which will effect the desired standardization. Tables are available which show just how much cream of a given butterfat content should be added to a 40-quart can of milk, the average test of which is known to the producer, to bring it to any desired standard.

A special standardizing centrifugal cream sep-

arator has been developed and is now in use on a number of farms. It is a complete solution to the problem of milk standardization. To standardize with this machine all of the milk from a milking is run through it. In most cases the separator is started shortly after milking begins and is kept in operation throughout the milking. By the time milking has been completed standardizing will also be practically completed. Thus little extra time is required for standardizing.

In the majority of installations the standardizing separator is driven by electric motor. The amount of electricity needed to operate the machine is extremely small and the use of the machine is, therefore, very economical.

The principle of the standardizing separator is very simple. The bowl is adjusted so that a small amount of skim-milk is withdrawn through the skim-milk discharge of the machine, and as a result the remaining whole milk which is delivered from the upper discharge spout of the separator will test higher. The amount of skim-milk withdrawn may be varied by bowl adjustment so that whole milk of any desired butterfat content may be produced.

The body adjustment for securing variation of butterfat content is very sensitive, and once the bowl is adjusted to produce milk of a certain cream content the machine will continue to standardize with little variation.

The amount of skim-milk removed by the standardizing separator naturally varies depending upon the herd test and the butterfat content to which the milk is to be increased. This is shown by the table reproduced on this page.

Other Advantages of the Standardizing Separator

The standardizing separator is in effect a multi-purpose machine. It can also be used as a regular cream separator and will separate cream ranging in test from 15% to 75%. Cream testing from 60 to 75% solidifies as it cools and is known as home dairy spread. It can be worked in an ordinary butter worker, washed and salted to suit the taste and is then a splendid sweet cream butter made entirely without churning.

Another very important advantage of the standardizing separator is the fact that while it standardizes it clarifies the milk. Dairymen have been particularly pleased at the amount of extraneous matter remaining in the bowl of the separator after standardization as this naturally has a splendid effect on their sediment tests. It is more effective than any method of straining could possibly be.

Out Where the West Begins

By Clara Alden Pettengill

YES, begins its day with electricity, and continues far, far into the night, we have learned many kinks and quirks that possibly some of you Eastern women who read this magazine have not yet put into practice.

Western women have a way of wangling out of their husbands just about all the new-fangled appliances which legions of thoughtful experts are continually "thinking-up." Then they make these gadgets so diabolically attractive that we just know we will expire before sunrise if we can't have 'em!

Of the dozen cords which I may plug in at will, the one to the portable electric cooker is the one which has come to my rescue times on end. When it was necessary to take something hot to an all-day conference, to a church supper, to a picnic or an all day fishing trip in the mountains, this priceless treasure stood between us and cold scalloped potatoes, luke-warm tamale loaf or congealed gravy!

The community has everybody listed who owns such a cooker, and she is a wise woman who can pick out her prized possession from a dozen or two that always find their way to community

(*Continued on page* 21)

Standardizing Milk of Low Butterfat Content

Per Cent Butterfat in Standardized Milk

Per Cent Butterfat in Whole Milk	3.5%			3.8%			4.0%		
	Lbs. Whole Milk	Lbs. Standardized Milk	Lbs. Skim-Milk	Lbs. Whole Milk	Lbs. Standardized Milk	Lbs. Skim-Milk	Lbs. Whole Milk	Lbs. Standardized Milk	Lbs. Skim-Milk
2.0	100	57.2	42.8	100	52.7	47.3	100	50.0	50.0
2.1	100	60.0	40.0	100	55.3	44.7	100	52.5	47.5
2.2	100	62.8	37.2	100	57.8	42.2	100	55.0	45.0
2.3	100	65.6	34.4	100	60.5	39.5	100	57.5	42.5
2.4	100	68.6	31.4	100	63.1	36.9	100	60.0	40.0
2.5	100	71.4	28.6	100	65.7	34.3	100	62.5	37.5
2.6	100	74.3	25.7	100	68.4	31.6	100	65.0	35.0
2.7	100	77.2	22.8	100	71.0	29.0	100	67.5	32.5
2.8	100	80.0	20.0	100	73.6	26.4	100	70.0	30.0
2.9	100	82.9	17.1	100	73.6	23.7	100	72.5	27.5
3.0	100	85.7	14.3	100	78.9	21.1	100	75.0	25.0
3.1	100	88.6	11.4	100	81.6	18.4	100	77.5	22.5
3.2	100	91.4	8.6	100	84.2	15.8	100	80.0	20.0
3.3	100	94.3	5.7	100	86.8	13.2	100	82.5	17.5
3.4	100	97.1	2.8	100	89.5	10.5	100	85.0	15.0
3.5	...	...	...	100	92.1	7.9	100	87.5	12.5
3.6	...	...	...	100	94.8	5.2	100	90.0	10.0
3.7	...	...	...	100	97.4	2.6	100	92.5	7.5
3.8	...	...	...	...	...	...	100	95.0	5.0
3.9	...	...	...	...	...	...	100	97.5	2.5

ELECTRICAL HOUSEKEEPING

Conducted by
GAIL MEREDITH

baby talk

BEING able to press a button for light, or heat, or cold makes a big difference in the work of taking care of a baby.

If he is a bottle baby, you want heat to sterilize his bottles and warm his food. Quick heat, heat you can turn on when you need it, and off when the job is done. An electric stove gives you that heat when you want it, day or night, with no work on your part.

You want cold you can depend on to keep his food absolutely safe and wholesome, electricity brings you that in the refrigerator, too.

For that two o'clock feeding there is a little bottle warmer that will heat the bottle gently

Sun Lamp

right there by the crib while you are taking care of the baby.

If you live in an area where there is a special water heating rate, electricity may well heat the quantities of water taking good care of a baby demands,—heat it in a storage tank that will supply you with all the hot water you need day and night.

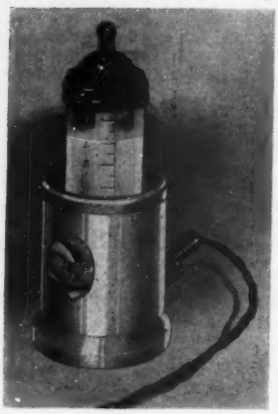
Then there are small sized washing machines to do the daily washing for the baby, or the regular washers whose new design lets them take care of a small washing as effectively as they take care of a large one.

On frosty days there is a heating pad for his crib, or a portable heater for his bath time. All winter long he can tumble about under a sun lamp that brings summer sunshine into his nursery throughout the year.

Sun-Like Warmth for the Bath

A friend of mine has a sun lamp in her bath room. She turns it on when she bathes the twins and leaves it shining on them as they sit in their nursery chairs afterwards.

When the weather is hot, there are fans to make



Bottle Warmer

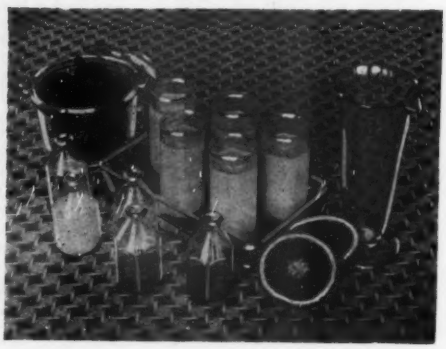
a pleasant little breeze so the baby can sleep.

You can see there are lots of ways electricity can help you care for babies.

Protecting Eyesight

When the baby is somewhat older, this same electricity makes it easier for him to study on dark days at school and to do his home work at night. It drives the fans that bring fresh air into crowded school rooms. Through lantern slides and educational films, it shows him the wonders of science and nature; it carries him all over the world with the radio.

Electricity even helps him play. A well lighted work bench where electricity drives the drill, the



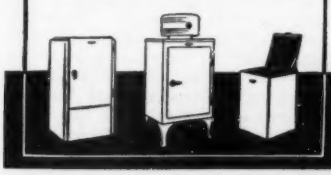
PERFORMANCE
outweighs all other refrigerator features combined

5 YEARS PROTECTION

In addition to the standard 1 year warranty G-E refrigerators carry 4 more years protection on the hermetically sealed mechanism for only $5—five years protection for only $1 a year!

Only General Electric offers you all three types of electric refrigerators—Monitor Top, Flatop, Liftop—each with the ageless G-E sealed-in-steel mechanism.

PRICES ARE AS LOW AS $77.50 f.o.b.



THE REFRIGERATOR THAT DEFIES TIME!

GENERAL ELECTRIC refrigerator owners, living on farms, will tell you that *performance* is what counts when you buy a refrigerator.

Year after year the performance record of the simple, flawless G-E mechanism has become more astounding. Hundreds of thousands of owners have found this Monitor Top mechanism performs just as efficiently *after six years use*, as it did the first day they bought it.

In a G-E refrigerator you will, of course, find the most modern convenience features, but, more important to *you*, it will give dependable year after year service and cost less to operate. General Electric Company, Specialty Appliance Sales Department, Section CZ-3, Nela Park, Cleveland, Ohio.

IT COSTS LESS TO OWN A GENERAL ELECTRIC

GENERAL ELECTRIC

RIGHT: 275 Gallons per hour Westco

$49.75

Slightly higher east and west coasts.

Others up to 3000 G.P.H. Larger tanks available. All pumps guaranteed.

NO Belts Gears **NO** Valves Springs **NO** Pistons Leathers **NO** Hammering Pounding

Now, enjoy lively running water that's really trouble-free.

WESTCO—the world's simplest electric pump has only ONE moving part. And, it operates *without* metal-to-metal contact. Think of it! No belts—no gears—no pistons—no rods—no leathers—no springs—no valves. In fact, nothing to wear or get out of order.

Pumps 38% More Water

To ground floor or basement faucets, Westco pumps **38%** more water than its rated capacity without increasing electric current consumption. Guaranteed 28 ft. suction lift. Patented all-bronze Removable Liners assure lifetime service from pump casings. Rust-proof construction throughout. No expensive repair bills. Quiet and cheap to operate. Thousands of satisfied users. Sold on MONEY-BACK GUARANTEE.

Get FREE Catalog

Fill in coupon below and *mail today!* Free colorful Catalog will be sent. WESTCO PUMP CORPORATION, Davenport, Iowa. Branches and Warehouses: New York, Philadelphia, Chicago, Los Angeles, San Francisco.

Under Federal Housing Act, the Government loans money for water system purchases. Ask your local bank.

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Gentlemen: Without obligation, please send me FREE Westco Catalog.

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Town .....

State .....

WESTCO Turbine WATER SYSTEMS

lathe, and the saw or heats the glue pot and the soldering iron, invites fathers and sons to play together making things. It is a sort of an insurance policy for a boy's future, too. The cross roads store, the town pool hall, and even the movies cannot compete with interests like these.

Electricity is only a tool, of course, a tool that gives us time and energy and opportunity for easier, pleasanter, richer living.

It cannot make fine men and women. Your love, your sacrifice, your guidance, your example, must still do that. But I just wanted to call your attention to the fact that it is an easier job to bring up children by machinery.

• • •

HEADLINES for HEATERS

NOT every heater makes a headline. In fact most small electric heaters have seemed quite content to go along quietly contributing their share of comfort to family living year after year with no fuss or recognition at all.

We have come to accept the fact that a heater that will warm up the bathroom in a hurry makes dressing pleasanter on chilly mornings. We know it often means just the difference between chill and comfort for the older and the very young members of the household;— for the first when they sit still for long hours sewing or reading, and for the second as they sprawl about playing on the floor. But to view the heater in any heroic role is a new idea.

Last year Mrs. Eugene B. Tinker of Creswell,

Oregon wrote us that their electric heater had saved her summer's canning during an unseasonable cold spell.

"As Oregon has very little severely cold weather, one is not prepared to meet it when it suddenly comes down out of a clear sky. When zero weather made Oregon a prolonged visit last year we would have lost heavily had it not been for electricity. . . .

"Our canned fruit and vegetables which were stored in an unheated storeroom were saved by a small bathroom heater which we burned intermittently during the cold spell."

This winter we have found these small heaters equally effective in fighting Wisconsin cold.

The oil truck failed to deliver oil. The thermometer was dropping ominously, five, ten, fifteen below. We spent the evening anxiously consulting the thermometer and shaking the gauge on the oil tank as though that would tell us whether the oil would last until tomorrow or not. We pushed the thermostat back as far as it would go in an effort to stretch the oil out a little longer. Finally we went to bed.

Along about four my husband woke up with a jerk.

"Listen," he said. "The oil is gone. You can't hear the furnance now."

I listened obediently, but noises do not mean definite things to me as they do to him,—and more than that, no noise ever wakes me up when it stops.

"What are we going to do?" I asked as I shudderingly pulled down the window.

But my husband was ready for that, too. Hurrying out of bed, he rummaged on the hall shelf and brought down our two electric heaters. The reflector heater, the one with the round metal bowl and a cone shaped heating element in the center, he put out in the kitchen. He set it quite near the sink, but far enough away so it would not take the paint off the pipes or blister the wall.

He took the air circulating heater into the bathroom. That is a small drum like affair with a flat metal ring for a heating element, a ring that encloses a fan to blow the heated air about the room. In this heater the cold air is drawn up over the hot ring and then out through the open meshes of a wire guard that surrounds ring and fan. The heat spreads out in a steady gentle flow in every direction, even back to the floor, and since it is a 1000 watt heater there was enough heat there not only to prevent any danger to the pipes, but to keep the bathroom comfortable even in the rapidly dropping temperature of the house.

"Now for the heating pad," said my husband rummaging around until he found it in our bed room closet. Plugging it into the convenience outlet at the head of our bed was the work of a moment. And our comfort was assured.

It was cold in the house when we woke again, but there were no frozen pipes with their long trail of attendant disasters to walls and ceilings, to tanks, and to fragile bank accounts. Two small heaters prevented that.

• • •

DOUGHNUTS

WHETHER you dunk or not, you probably like doughnuts. Most folks do. Always

Get Lower Bacteria Count—Get Better Milk

Make More Money!

The Esco Electric Milk Cooler pays for itself from the very start. One user saved $34.00 in one month . . . another says, "Extra Milk Profits paid for it."

Esco (low cost) Electric Cooling Equipment Makes Money for you . . . because it quickly cools milk to 50 degrees or below and keeps it cool until shipped. Reduce bacteria count . . . raise the quality of your milk . . . and make your milk more salable.

CLIP THIS COUPON TODAY and get FREE BOOKLET—"HOW TO GET BIGGER MILK PROFITS—THE ESCO WAY"

ESCO is the original patented Milk Cooler

ESCO CABINET COMPANY 3EOF35
West Chester, Pa.

I am making.....cans of milk.....bottles of milk per day. Please send information on Esco Electric Milk Cooler. Also Free Booklet "HOW TO MAKE BIGGER MILK PROFITS—THE ESCO WAY."

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P. O..... State.....

ESCO

RUNNING WATER
at the turn of a faucet!

FREE BOOK helps you plan—saves you money

● Think of it! Running water—all you want, and under pressure from your own well, cistern or other source of water supply. A single compact unit does all the work. Units are available for either electric motor or gasoline engine drive.

Our valuable FREE book helps you to plan for this convenience, and tells you exactly what you need. 18 pages of easy-to-understand diagrams give you up-to-date data on deep well, shallow well, cistern, pond and other installations. Makes everything simple and easily understood. Prevents mistakes.

Mail the coupon today. Your copy will be sent without charge or obligation.

200 gallons per hour

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Please send me a copy of your new illustrated handbook on water systems for homes and farms.
My source of water supply is ☐ Lake ☐ Spring ☐ Stream ☐ Deep Well ☐ Shallow Well ☐ Cistern.
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FAIRBANKS-MORSE
Home Water Systems
Engine or motor driven for every farm and home use

when I was a little girl and sniffed the pleasant smell of doughnuts sizzling in hot fat, I used to set up a clamor around the kitchen for "the first doughnut baked, the first doughnut baked." It always tasted the best of all, even if I could not wait for it to cool before I set my teeth in it.

This recipe was developed in the experimental kitchen of a big stove company. Notice, if you will, how carefully they have worked out for you the cooking as well as the mixing.

¼ cup butter
1 cup sugar
2 eggs
4 cups flour
4 teaspoons baking powder
1 teaspoon salt
1 teaspoon nutmeg.
½ teaspoon cinnamon
1 cup milk.
1 teaspoon vanilla
2 pounds fat.

Utensil: Deep fat fry kettle to fit small unit.

To Mix: Cream butter and sugar.
Beat in eggs.
Add sifted dry ingredients alternately with milk.
Add vanilla.
Roll ¼ inch thick and cut with doughnut cutter.

To Cook: Heat fat on High heat for about 15 minutes. 85 deg. F.
Switch to Low heat and fry doughnuts.
Use High heat occasionally to bring temperature up.
Drain on brown paper.

To Serve: Shake in paper bag with powdered sugar.

I am sure they meant to add, serve with a cup of coffee, piping hot.

Shopping 'Round for Ranges

(*Continued from page* 12)

reach the conclusion that small units use less current than large ones. But there is another side to that picture. It should be equally plain that the burner with the larger wattage heats the food more rapidly than smaller ones. It cannot cook it any faster after the food comes to a boil, of course, for food will cook only just so fast, and water can get no hotter than boiling no matter how much heat there is below it.

You might set up as the ideal unit you are looking for, one that will heat quickly, one that holds the heat well, and one that is durable. It should be absolutely flat across the top so the pans will fit the burner tightly, and it should have low replacement cost.

The oven comes next.

It should be big enough to hold your largest

roaster and your ordinary bakings. It must have ample wattage to heat quickly and it must be well insulated. For it is one thing to heat that oven and quite another to keep the heat inside. You have to depend on good thick insulation between the inner and outer walls of the oven to do that. Make sure the stove has it.

The oven door must be equally well insulated. It should fit tightly, for, of course, a crack around the door lets a lot of warm air out. The hinges and springs and latches of the door must be strong and well made to keep the door in place.

Investigate Oven Construction

The oven will be easier to clean, and since you are buying freedom from work with an electric range, you want to watch that,—the oven will be easier to clean if it has rounded corners and if all the racks and guides and shelves come out, leaving a box lined with enameled porcelain, aluminum, chromium or any other durable, and rust proof material.

For the sake of convenience and their permanence have a look at the shelves. They should slide easily and be made of heavy wire that will neither rust nor warp. One range oven has sliding shelves that pull out and are held in place by some catch along the guides. Being able to pull those shelves out instead of having to reach in to lift out a hot dish is a comfort and convenience. With a range flat across the top like a table, those sliding shelves do away with any need for stooping to peer into the oven.

A good oven regulator is an essential on an electric range. It both insures the uniformity of good results for you and it cuts down the amount of current you will use. One responsible engineering estimate based on early tests with electric ranges bases this saving at 25%. It saves time and food as well as electricity. It is also a protection to the oven, guarding against overheating. And too high temperatures may make it warp and crack and so shorten its life.

The new regulators are both thermometers and thermostats. You set the dial for 400 say, turn on the electricity and in a few minutes the little pointer that records the temperature will creep up to 400. Then the current snaps off. It will go on and off to keep an even temperature in the oven throughout the cooking period.

Ann spent some little time learning all these things about ranges. Now she is satisfied that she knows what to look for in both materials and workmanship; she has seen a good many ranges during the learning, too. With quality standards established, she tells me she is going to have a grand time now shopping for styles to fit just the kitchen she plans to have.

Out Where the West Begins

(*Continued from page* 15)

affairs, and which stand in mute array after supper or luncheon awaiting "the skin they love to touch." I put a streak of yellow paint on mine—on the cooker, I mean—so that it fairly hits me in the eye when I start on my quest.

Then these Mother and Daughter and Father and Son banquets, where mashed potatoes and creamed chicken must be kept piping hot until

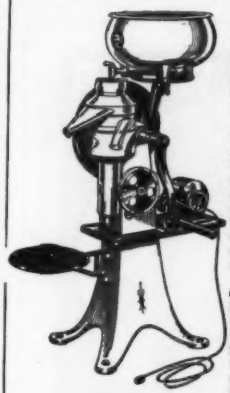
Announcing the Special

DE LAVAL

MULTI-PURPOSE SEPARATOR

— Standardizes Milk
— Clarifies Milk
— Separates Cream
— Makes Home Dairy Spread

THIS new De Laval Separator has a combination of advantages and uses never before incorporated in a cream separator. It can be used for standardizing or raising the butterfat content of whole milk to any point desired, and while it is standardizing it is also clarifying the milk so that all sediment and extraneous matter are effectively removed.



In addition it can be used as a regular separator to produce cream of any desired thickness, and also to make Home Dairy Spread, which is a cream testing as high as 75 per cent in butterfat and is so thick that it forms an excellent spread.

To standardize milk with this machine, all of the milk from a milking is run through it. The bowl is adjusted so that a small amount of skim-milk is withdrawn from the skim-milk discharge of the machine and the remaining whole milk, which is delivered from the upper discharge spout of the separator, tests higher in butterfat.

See your De Laval dealer concerning this new Multi-Purpose Separator, or mail coupon below for complete information. In addition to this separator there are four complete series of De Lavals, providing a separator for every need and purse—each the best of its class.

DE LAVAL MILKERS

De Laval Magnetic and Utility Milkers milk cows better, faster, cleaner and cheaper than any other method of milking—that is the reason for their widespread use and popularity.

There is nothing which will put more profit and satisfaction in your business than a De Laval Milker. Outfits furnished in a great variety of styles and sizes, for every need and purse. *See your De Laval dealer or mail coupon.*

MAIL COUPON TODAY

THE DE LAVAL SEPARATOR CO., Dept. 6220
New York—165 Broadway
Chicago—600 Jackson Blvd.
San Francisco—61 Beale St.

Please send me information on the following machines I have checked:

Multi-Purpose Separator..... ☐
Regular Separator..... ☐ Milker..... ☐

I milk ..... cows.

Name.....

Address.....

two or three hundred persons are served—what did we do, prior to the advent of these electric casseroles? We ate 'em cold!

And, taking it out in polite society is just one of its many advantages. Many times have I put a roast in one container and potatoes in the other, then, with a salad and ice cream in my refrigerator my dinner was ready to serve, even if I arrived home a trifle late! (And, speaking of ice cream—I expect any day to have my family order it for breakfast, for they count that day lost that does not yield ice cream at least twice a day.)

And here is something else that happens—but do not let the purveyors of "juice" hear this—I often fill one container with ice cubes, then pack the other container with a salad or frozen dessert or cubes of melon, and is *that* refreshing on a picnic?

So if I did not have this handy little cooker in my home, I'd start nagging right away, or whatever my most productive method of wangling might be, and thus again, as often before, would I welcome as my Christmas gift, Mothers Day gift, wedding anniversary gift or birthday gift, something which would be appreciated by the whole family, as well as by Mother.

DEMING
WATER SYSTEMS

• Here is the outstanding pump success of 1934. The quietest and safest Deep Well Water System—can be purchased for as low as $95.00 F.O.B. Salem, Ohio.

Before you buy any water system get this FREE forty page catalog—completely describing Deming Pumps for shallow or deep wells, for operation by electricity, gasoline engine, windmill or by hand.

WRITE for this FREE Catalog

See your banker about financing Deming water systems and their installations under the National Housing Act.

THE DEMING CO.
302 BROADWAY • SALEM, OHIO
Pump Manufacturers Since 1880

ON THE AIR

Conducted by Jerome J. Henry

Stymied For Once

IT'S not very often that the "March of Time" producers are stymied in getting authentic sound or voice effects in the program.

Recently everyone concerned was forced to wonder about what kind of a sound a man would make while hanging on a rafter by his own necktie. No one seemed to know. But Bill Pringle saved the situation. He had been hanged once on the stage with a wire, which was supposed to support him while he apparently hung from a rafter by a rope.

Once the wire snapped. The rope held, but Bill was rescued before the spirit left the body. So Bill lived to aid the producer by telling him what sort of noise he made while hanging from a rafter.

• • •

Lombardo Not Only a Good Musician

BESIDES being one of the leading dance band leaders, Guy Lombardo has proved himself a keen student of psychology.

The conductor has so accurately gauged public musical taste since June that he has established something of a record by introducing almost one new song each week, all of which have swept the country as favorites.

Chief among the tunes for which Lombardo predicted popularity have been "I Saw Stars," "Have A Little Dream," "Everything You Said Came True," "Just Once Too Often," and a number of others.

It seems that Lombardo certainly knows what

Vic, Sade and Rush. And it seems the family is getting ready to take in a picture show.

the public likes. His band, which hasn't changed its personnel since its organization in London, Ontario, ten years ago, is heard three nights a week this winter over NBC stations. On Wednesday, a leading sponsored program features his music with Pat Barnes as narrator.

Betty Jane and Virginia Holman, the young sisters whose two-piano performances are heard over NBC stations every Monday morning. They make their own musical arrangements and learn them so quickly that virtually all rehearsal is from memory.

• • •

Stories of Black Chamber in New Series

THE experiences of Major Herbert O. Yardley, organizer of the American Black Chamber which deciphered thousands of code messages and paved the way for the capture of many spies during the World War is now being dramatized for radio listeners.

Major Yardley's exploits have won him international fame. The Black Chamber deciphered some 40,000 messages of enemy and friendly powers and developed hundreds of secret ink spy letters. Since 1929 when the Black Chamber closed, Major Yardley has spent his time writing. The radio series is on NBC stations every Monday, Wednesday, and Friday.

• • •

Barn Dance Goes to Rosedale

ROSEDALE, the mythical community in which is located the mythical station EZRA, owned and operated by Uncle Ezra, is the source of plenty of homespun entertainment.

Uncle Ezra started his way to fame through station WLS, famous for its barn dance entertainment. Then he moved to his own station EZRA, and a short time ago the entire barn dance cast moved in on him for a visit during one of his programs.

Uncle Ezra is really Pat Barrett, a jolly good fellow who won his way to the hearts of listeners with cross-roads humor and music.

• • •

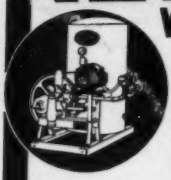
Studio Chatter

AN admirer once sent Jessica Dragonette an autographed photograph of a parrot. The bird's foot was dipped in ink to register the footprint on the photo. Ben Bernie boasts that a cigar hasn't touched his lip in years, though he smokes about 50 a day. He uses a cigar holder.

One of the page boys at the NBC studios had it in for Jack Benny. Recently the young man walked through a studio, uniform pressed and buttons shining, and the comedian said to the audience, "Folks I want you to meet the Student Prince."

The next Sunday the page boy had his inning. Just as the show was about to go on the air he shouted, "Boy, this Joe Penner is a great comedian."

NEW TROUBLE-PROOF HOOSIER WATER SYSTEMS



HOOSIER electric water systems end water worries. Entirely automatic. Many exclusive features. Oil and water cannot mix. No rusty water. Improved refrigeration type motors cannot burn out. For deep or shallow well; any current. Made by makers of STAR Windmills.

SEND FOR FREE BOOK

Illustrates newest models and shows how to select the system best suited to your requirements. Write today.

FLINT & WALLING MFG. COMPANY
315 OAK ST., KENDALLVILLE, IND.

NEW 1935 MODEL
STEWART ELECTRIC
Clipmaster

Smaller EASY GRIP Handle
78% MORE POWER
Only $16.95
Slightly Higher West of Denver

Clipped horses work better, feel better, look better. Groomed in half the time. Clipping acts like tonic to horses and mules. Also fine for clipping cows. Clipmaster has new, smaller, easy-grip handle only 3 inches in diameter. Motor in handle designed exclusively for this new Clipmaster is air-cooled. Ball bearings. Perfect balance. 78% more power. The fastest clipping, coolest running, easiest to handle clipper ever made—only $16.95. At your dealer's or send $1. Pay balance on arrival. Send for FREE catalog of Stewart electric and hand-power Clipping and Shearing machines. Made and guaranteed by Chicago Flexible Shaft Co., 5524 Roosevelt Road, Chicago, Ill. *45 Years Making Quality Products.*

COSTS NOTHING TO INVESTIGATE
Electric Brooding

Our new illustrated booklet, "Better Chicks," describes tested Electric Brooders for both small and large flocks. Gives accurate records of brooding costs. Explains why electric brooding pays.

Write today for your copy of this interesting Booklet. IT'S FREE!

The TRUMBULL ELECTRIC MFG. CO.
1012 WOODFORD AVE. PLAINVILLE, CONN.
A GENERAL ELECTRIC ORGANIZATION

CHROMALOX
SUPER-SPEED ELECTRIC RANGE UNITS

Give Your Kitchen A REAL PRESENT—

Equip the old electric range with Chromalox Units and get all the benefits of modern electric cookery. New speed, new cleanliness, safety, lower electric bills, longer unit life. Units to fit all electric ranges. Ask your power company, or write us for details.

Edwin L. Wiegand Co., 7580 Thomas Blvd., Pittsburgh, Pa.

ASK YOUR POWER COMPANY for a FREE TRIAL

Questions and Answers

Changing A.C. to D.C.

Question: *How can I change 110 Volt A. C. into 110 Volt D. C. without any expensive equipment?*

JUNIOR SHOWALTER,
F. D. 3, P. O. Box 160,
Roanoke, Va.

Answer: One method of changing 110 Volt A. C. into 110 Volt D. C. is to drive a 110 Volt D. C. generator with an A. C. motor. Of course this would entail considerable expense and result in very inefficient operation. The rectifier is also used for limited applications.

There is no simple or inexpensive equipment or method that I know of for converting A. C. to D. C. on a practical basis.

Wiring for Electric Range

Question: *Why is it necessary to have three wire service to operate an electric range?*

A. F.

Answer: The principal reason that the standard range is wired for three wire service is to give a more balanced load condition on the line and furnish a more uniform voltage for the house service. It is the same reason why power companies insist on large motors being connected to 220 volt service.

The standard range is wired to operate on two 110 volt circuits, one of the circuits consisting of one of the outer wires and the middle wire of a three wire system and the other circuit consisting of the other outer wire and center wire.

The heating elements of the range are in two separate coils controlled by switch operation. With the switch in the "hot" position, the two heating coils are in parallel in a 110 volt circuit. With the switch in "medium" position, the heating coils are in series in a 110 volt circuit. With the switch in "low," only one of the heating coils is energized in a 110 volt circuit. The heating elements of the oven operate in like manner.

Operating Cost of Refrigerator

Question: *We have a 1926 model electric refrigerator. It works all right and nothing whatever has been done for it in these eight years. (a) Should anything be done? (b) Is it wasting electricity? I should fear to let any so-called electrician touch it. (c) How much should it cost each month to operate? Our bills are excessively high. We cook with an electric stove, iron, wash, etc., for four persons.*

J. H. C.,
Newtown, Pa.

Answer: As long as your refrigerator continues to operate satisfactorily, do not worry about it. The refrigerator is functioning as it was designed to function to give years of continuous service without requiring attention or causing worry.

When electric equipment gives trouble it is al-

ways advisable to consult an authorized agent of the manufacturer before having any repairs made. The manufacturer is anxious to learn of any defects in construction or design and is in a position to make a more satisfactory adjustment to the customer.

Your refrigerator is a good example of what can be expected of high grade standard equipment. The longevity and smoothness of operation of electric equipment as compared to other types of more crudely constructed farm machinery continues to be a source of wonder and pleasure to the farm operator.

Periodically for six years I have tested the energy consumption of a refrigerator in domestic use and apparently the age of the refrigerator has no effect upon the energy consumed.

It ordinarily requires one and one half to two KWH per day for ordinary household refrigeration.

A bill may be excessive on a high energy rate but on a reasonable low rate the service rendered, the conveniences and comforts attained and the labor saved give a greater return for the expense involved than any similar expenditure of which I know.

Tree Lighting Circuit

Question: *How many Christmas tree lights may be connected in parallel on a No. 18 light cord?*

Can the voltage of an A. C. circuit actually be increased by placing a coil in the circuit?

GILBERT ARENDS
Cleveland, Wisconsin.

Answer: A No. 18 B & S gauge rubber covered wire has a safe rated carrying capacity of 3 amperes. Volts x amperes equals watts. 110 Volts x 3 amperes = 330 Watts that could be put on the circuit. Dividing the total watts, 330 by the voltage of one lamp gives the number of lamps that could be safely operated on the No. 18 wire cord. In this case the circuits would safely carry 33 ten watt lamps. It is interesting to note that often a 500-600 watt iron is connected to a No. 18 wire extension cord or drop cord.

One coil in a circuit would decrease rather than raise the voltage because it would offer more resistance to the flow of current. Two coils with a different number of windings on each could be used in a circuit to either raise or lower the voltage by reversing the connections to the coils. This is the principle on which transformers operate. Two coils of the same number of windings would not change the voltage.

Running Water.. $43.75

Do you know that a complete shallow well system may be obtained for as little as $43.75. Write us today for complete information, giving depth of your well and approximately how many gallons of water you require daily. Uniflow Manufacturing Co., Department E. Erie, Pa.

GUARANTEED

MILK COOLERS

Ask for bulletin describing Uniflow line of Electric Milk Coolers.

UNIFLOW

"THE PUMP SUPREME"

Who Makes It?

Here is equipment known to be practical and economical for farm use. The manufacturers listed are leaders in their respective lines and can take best possible care of your needs.

Write to them directly for any information or data you desire.

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For information about devices not included in the above list—use this handy coupon.

TEAR OFF HERE

Electricity on the Farm, 24 W. 40th St., New York

Without cost to me, please have manufacturers send complete information on the following Electrically Operated Equipment which I am thinking of buying:

....

....

My name is .....

Address .....

..... 3-35

What's New

Reviewed by T. E. HIENTON

Names and addresses of manufacturers of the articles described in this column will gladly be furnished upon request. Address your requests to What's New Department, ELECTRICITY ON THE FARM, *24 West 40th Street, New York, N. Y.*

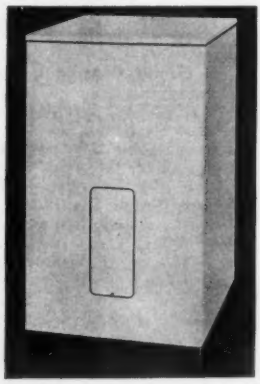
Electric Brooder

Electric brooders apparently continue to increase in popularity with American farmers for brooding at any time during the year. The ease of installation and simplicity of operation are inducements offered by the electric brooder which farmers are quick to recognize.

Another electric brooder developed and manufactured in the Middle West has recently made its appearance there. Differing somewhat from existing brooders this one is rectangular in shape. The brooder is heated by two lamps and two circular heaters. Conical chrome-steel reflectors are used to reflect the heat downward from both lamps and heaters. They are made in two sizes, 38 by 46 inches and 48 by 72 inches with 390 watts and 780 watts respectively. The capacities of these brooders, 250 or 500 chicks each, are rated according to seven square inches per chick.

Electric Water Heater

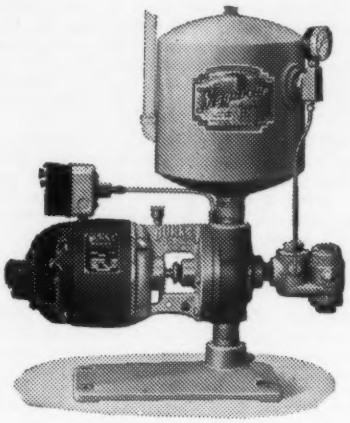
Farm houses actually require larger amounts of hot water than do those in town or city because of the greater variety of work done. Milking utensils and cream separator parts are brought to the house to be washed on the majority of farms today. Families including farm help are larger too, necessitating more hot water for washing dishes and laundering of clothes. Electric water heaters meet this demand for hot water in farm households and they are being installed in farm houses in increasing numbers.



A new water heater has been recently announced by a well known manufacturer as a companion to a low-priced range and refrigerator of the lift-top type. It is 36 inches high, 21 inches wide, 22½ inches deep and has a capacity of 30 gallons. The copper-alloy tank is finished in white enamel, and guaranteed for 300 pounds test pressure and 150 pounds working pressure. An immersion unit is furnished with the heater in nine sizes ranging from 500 to 3000 watts. Insulation averages three inches in thickness. The thermostat set at the factory for 150 to 155 degrees, is adjustable from 130 to 200 degrees. The top of the heater is finished in white porcelain and may be used as a working surface.

Electric Household Water Pump

Water at the turn of a faucet is most practical on a large percentage of farms in the United States where the pump is powered automatically by an electric motor. Requiring little attention except occasional oiling, the small motor on the water pump is truly one of the most valuable silent servants which electricity brings to the farm.

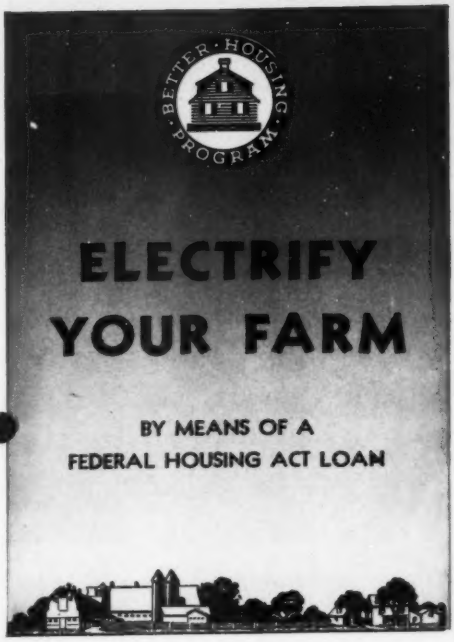


A middle-western manufacturer of a well known household pump announces a new pump of simple design. Two sizes of shallow-well pumps, rated at 200 and 300 gallons per hour, are direct connected to 1/6- or ¼-horsepower motors respectively. Motors may be had in either size for 110-volt, 60-cycle alternating current, odd cycle 110-volt a.c., or 32 or 110-volt direct current. Motors are protected against undervoltage and overload conditions. This turbine pump is guaranteed for 28-foot suction lift. The storage tank 10 by 12 inches in size, is of 4-gallon capacity. A stainless steel shaft is mounted in ball bearings. Impeller and raceway are of cast bronze while the base and pump case are of cast iron.

CLASSIFIED ADVERTISING

BROODERS—The unexcelled "Lyon Improved Electric." Other practical well proven types. ALARMS—Burglar, Fire, Temperature, Power-Off, etc. HEATING EQUIPMENT—for incubators, home made brooders. Water heaters. FLY and INSECT KILLERS—Send for complete electrical catalog and brooding data. LYON ELECTRIC CO., San Diego, Calif. (Pioneers of Electric Brooding).

The PARAGON POULTRY TIME SWITCH is scientifically designed and approved by state universities. It provides automatic control both morning and night and DIMS THE LIGHT AT NIGHT to allow the hens to return to roost. Low price and UNCONDITIONALLY GUARANTEED. WRITE for full information today. PARAGON ELECTRIC COMPANY, Van Buren and Dearborn Sts., Chicago, Ill.



ELECTRIFY YOUR FARM

BY MEANS OF A
FEDERAL HOUSING ACT LOAN

WEST PENN
POWER COMPANY

THE FARM

- ☐ Wiring for house and farm buildings.
- ☐ Additional Convenience Outlets ("wall plugs").
- ☐ Lighting fixtures for Better Light and Better Sight.
- ☐ Installation of yard lights.
- ☐ Electric water pumping systems.
- ☐ Barn ventilation system.
- ☐ An electric water heater.
- ☐ Stationary orchard spray plants.
- ☐ Permanent irrigation systems.
- ☐ Electric hot beds.

FOR YOUR

And don't forget the

- ☐ Electric pump for ru
- ☐ Automatic water hea
- ☐ Electric range
- ☐ Electric refrigerator
- ☐ Electric dishwasher

Put them all togethe
step-saving ki

YOUR HOME

forget the Farm Kitchen.

o for running water
ater heater
erator
vasher

l together in a planned
-saving kitchen.

THE DAIRY

- ☐ Milking machines of the pipe line type.
- ☐ Built-in milk coolers and refrigerators.
- ☐ Built-in dairy utensil sterilizers.
- ☐ Plumbed-in dairy water heaters.

THE POULTRY FARM

- ☐ Well lighted Poultry House.
- ☐ Electric Brooder
- ☐ Ultra Violet light.
- ☐ Artificial lights for winter production.

Requirements are simple

1. You must own the property or have a lease extending 6 months beyond the duration of the loan.
2. You must have a satisfactory reputation for paying your obligations and a regular income in the family at least 5 times the annual payments under the loan.
3. You must use the money for property improvements.

YOU MAY BORROW

1. From $100 up to $2000 depending on your income.
2. For from 1 to 5 years.

REMEMBER

1. The finance rate is low.
2. The loan is on your character and does not require collateral nor does it place a lien on your property.
3. Repayment is convenient and may be arranged monthly or seasonally.
4. While the Government has made these arrangements possible you borrow from your local banks—not from the Government.

Take advantage of present low prices — ACT NOW!

COVER TITLE CONTEST

JANUARY COVER

Awards for January

First Prize — $20

"Let electricity root for you."

Mrs. JOHN P. CORESSEL, R.F.D. 4, Defiance, Ohio.

Nine $2.00 Cash Prizes

"Planting heat, to heat the plantings."
ROBERT W. SMITH, R.F.D. 3, Felton, Pa.

"Wiring the 'plant' for a 'raise'."
W. W. ALTMAN, R.F.D. 3, Bellingham, Wash.

"Stealing a march on March."
MRS. CARL F. SALOMON, R. F. D. 1, Fort Wayne, Ind.

"Crops way ahead—from the electric-warmed bed."
D. H. BELL, R.F.D. 2, Akron, N. Y.

"Electricity—the gardener's warmest friend."
MRS. W. F. FORWARD, R.F.D. 1, Granby, Mass.

"No fires, just live wires.
Seedlings grow, tho' the cold winds blow."
MAUDE G. ROGER, R.F.D. 1, D-12, Sumner, Wash.

"Old Sol a substitute has found—
Electricity now warms the ground."
MRS. L. C. LOVELL, R.F.D. 1, Bellows Falls, Vermont.

"Pushing the calendar ahead the electrical way."
THELMA DAVIS, R.F.D. 1, Hebron, Ind.

"Cold soil—foiled. Warmed earth—birth!"
MRS. ALBERT C. WHITAKER, Greenville, N. H.

MARCH RULES

Ten cash prizes will be awarded for the 10 best titles for the picture on the front cover of this magazine.

The first prize will be $20 cash, and nine second prizes of $2 in cash will be awarded.

In case of a tie, each winning contestant will receive the full cash prize to which he or she is entitled.

Titles should be brief — the shorter the better — and short slogans will be given preferences over rhymes.

All members of the farm family to whom this magazine was sent may submit titles, but each contestant may submit only one title.

Question "A" must be answered.

Entries must be sent to the Title Editor, ELECTRICITY ON THE FARM, 6 North Michigan Avenue, Chicago, Illinois, before April 1st.

Winning names and titles will be announced in the May issue.

Send your title on the coupon or make out a similar form on a plain sheet of paper or government postcard.

My title for the March Front Cover picture of ELECTRICITY ON THE FARM is .....

.....

.....

.....

(a) What members of your family read ELECTRICITY ON THE FARM? .....

.....What features do you like best? .....

My name is..... R. F. D. .....

Post Office ..... County..... State 3-35

ELECTRICITY ON THE FARM
24 West [illegible] Street
New York, N. Y.

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Sec. 34.66, P. L. & R.
U. S. POSTAGE
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New York, N. Y.
Permit No. 552

An Unusual Opportunity

to install

RUNNING WATER

The Federal Housing Administration makes Loans for this Purpose

AN UNUSUALLY fine opportunity is at hand to give your family the convenience of RUNNING WATER.

***FIRST*—Equipment and installation prices are today the lowest in history.**

***SECOND*—The Federal Housing Administration now makes loans for the purchase and installation of the necessary equipment.**

***THIRD*—It seldom costs as much as 30c a month to operate an electric pump.**

Read the Attached Folder

A SMALL folder . . . entitled "Electrify Your Farm" . . . accompanies this issue of "Electricity on the Farm." Read it carefully. It explains the requirements for obtaining an FHA loan.

For a Free Water Systems Survey—See

YOUR PUMP DEALER

Who Displays the "RUNNING WATER" Emblem

201—o